

SECTION THREE – FACT SHEETS

Chapter Eighteen – Resource Management

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- Visitor Use
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Fact Sheet

Acadia National Park – Protecting Park Resources

A successful natural and cultural resource program that is scientifically based and professionally staffed is critical. Not only should the National Park Service staff be aware of the resource conditions and issues affecting them, but so should park visitors. An informed public is Acadia's most important ally. Armed with stewardship partners and reliable scientific data, Acadia National Park stands prepared to meet future challenges that include:

- Air pollution
- Accelerated rates of freshwater and coastal marine pollution
- Impacts of recreation on visitor experiences and park resources
- Protection of federal and state listed rare species and communities
- Restoration of disturbed landscapes
- Non-native plants
- Management of nuisance wildlife
- Private property encroachment and habitat fragmentation
- Lack of baseline information
- Compliance with federal and state laws
- Significant cataloging backlog

Common to all of this work behind the scenes is the need to understand the elements protected within the park, ecosystem functions, and human-caused changes over time. For current research, go to www.nps.gov/acad/rm/research.htm.

INVENTORY – IDENTIFYING PARK RESOURCES

An inventory is a snapshot of a part of the park that shows the condition of park resources at a point in time. Some park resources, such as rock outcrops, carriage roads, and historic buildings are relatively easy to observe. Other resources such as small mammal populations or ferns, require a more intensive inventory.

MONITORING – STUDYING CHANGES

An inventory may be a snapshot of a part of the park; but just as a person's appearance changes between pictures taken years apart, the park is constantly changing. By monitoring resources, park managers can keep track of changes, learn what the normal and natural condition of park resources is, and detect when something is wrong. Water and air quality monitoring are two examples.

SCIENTIFIC RESEARCH – UNDERSTANDING HOW AND WHY

Scientific research is a tool used to understand the natural world, suggest how to repair any damage discovered through inventory and monitoring, and answer pressing questions. Some research questions at Acadia National Park include:

- Do high levels of ozone affect Acadia's forests?
- Why have there been mass die-offs of frogs in some of Acadia's wetlands?
- Why are Acadia's bald eagles not raising many chicks?

MANAGEMENT – FINDING SOLUTIONS

After all information is collected, the data is examined and its implications are considered. Park stewards try not to interfere with natural changes. Human-caused changes can be harmful, however, and solutions must be developed to protect park ecosystems. This is the management in resource management at Acadia National Park. One example of a solution to a serious wetland threat is the control of the non-native invasive purple loosestrife.

RESOURCE PROTECTION – TAKING ACTION

The staff at Acadia National Park is a team sharing a common goal: resource protection. Everyone is involved in putting management solutions into action. Rangers inform visitors of the regulations protecting the park and, if the regulations are disregarded, issue a warning or citation to remind them of the seriousness of resource protection.

- Administrative officers see that needed equipment is available.
- Park educators offer ranger programs for visitors and school children so the public understands park resources and what can be done to protect them.
- Trail crews maintain the trails so that hikers do not trample plants.
- Park visitors are also part of the team, picking up litter and enjoying the park.

EVALUATION – INSURING THE BEST SOLUTIONS

Once a management plan is in action its success is evaluated to determine if changes are needed. This often involves monitoring the success of an action, discussing the solution with experts, or conducting research to determine if the action unintentionally affects another part of the park.

COOPERATING WITH OTHERS – SHARING RESOURCES

National parks may be refuges for nature, but they are not isolated. What happens outside the park can have profound effects inside the park. The reverse is true as well. Air quality is an excellent example of how Acadia works with groups from four northeastern states and four Canadian provinces for the same objective: clean air.



Fact Sheet

Downeast and Downwind – Air Quality

Acadia National Park is downwind from large urban and industrial areas in states to the south and west and, as a result of long-range transport, periodically experiences high concentrations of air pollutants. Although spectacular vistas are still common in Acadia, pollutants from upwind sources contaminate park air and degrade visibility.

In 1979, the National Park Service established a comprehensive air resources management program at Acadia, a Class I area under the Clean Air Act, to better assess air pollution impacts and protect air quality related resources. One of 14 national parks selected nationwide, Acadia serves as a regional index site to monitor environmental stressors and related ecosystem response.

The air resources management program includes: 1) monitoring to establish a baseline for selected pollutants and assess trends, 2) support biological effects research, and 3) regulatory interaction with state and federal agencies. The four major concern areas are:

- **Atmospheric deposition:** Includes rain, fog, snow. pH levels lower due to sulfur and nitrogen oxides, creating acidic conditions that some species may not survive.
- **Ozone effects:** Ground level ozone, formed in a chemical reaction between nitrogen oxides, volatile organic compounds and sunlight, affects much of the Maine coast at times in the summer. Ozone can cause breathing problems and may harm certain plants.
- **Mercury deposition:** Originating from natural sources, power plants, incinerators and industry, mercury can travel long distances and be deposited even in remote areas. It can affect nervous systems and reproduction.
- **Visibility problems:** Particulates (solid particles and liquid droplets) come from both human activities (power plants, industry, motor vehicles, fireplaces) and natural causes (forest fires). The result is a haze that obscures long-range views.

MONITORING PROGRAM

Pollutants

- **Ground-level Ozone,** *continuous monitoring, 1982-present at McFarland Hill, 1995 —present at Cadillac Mountain.* Acadia periodically violates the federal standard for ozone, exceeding the standard eight days in 1998, six days in 1999, and three days in 2000. High ozone events at Acadia are typically the result of long-range transport, with peak concentrations usually occurring between 6 pm and midnight. An ozone advisory program has been developed to alert park visitors and employees of unhealthful ozone occurrences.

- **Nitrogen Oxides (NO_x) and Volatile Organic Compounds (VOC)**, *continuous monitoring, 1995-present*. NO_x and VOC's are precursors to ozone formation. Of the two, NO_x is considered the limiting precursor in ozone formation, and is found in very low concentrations at Acadia.
- **Sulfur Dioxide (SO₂)**, *continuous monitoring, 1988-1990*. Because sulfur dioxide gas is found in very low concentrations at Acadia, continuous monitoring was discontinued after establishing a two-year baseline.

Meteorological Monitoring

- **UV monitoring** was initiated in 1998 to detect changes in the intensity of UV levels. Years of monitoring to detect trends are required. A study was initiated in the spring of 2000 to measure UV intensity, water quality, and other habitat variables in park wetlands. One objective of the study is to determine whether UV radiation may be a factor in amphibian decline.
- **Continuous monitoring**, *1993-present*. Wind direction, wind speed, temperature, dew point, solar radiation, and precipitation.
- **Non-continuous**, *(daily), 1926-present*. Precipitation, temperature.

Visibility Monitoring

The primary objectives of visibility monitoring are to: 1) establish baseline data and track trends of fine particulate concentrations, 2) determine the relationship between visibility impairment and various atmospheric particulate constituents, 3) determine sources of particles producing visibility impairment, and 4) determine the sensitivity of various sites to varying concentrations of particles. There are 3 major components to the visibility monitoring program:

- **Fine particulate monitoring**, *1987-present*. Sample particulates in the 0-2.5 (fine), and 0-10 (PM₁₀) micron size ranges, are analyzed for their chemical composition and probable source.
- **Optical monitoring** uses specialized equipment to measure light extinction and calculate standard visual range. In episodes of haze, light transmission is reduced.
- **Scene monitoring** utilized a 35mm camera photography to characterize visibility (1980-1995). Acadia is one of three sites in the northeast displaying continuously updated visibility photos and corresponding air quality conditions on the CAMNET website.

CONCERNS OF LONG-TERM EFFECT FROM POOR AIR QUALITY IN ACADIA

Atmospheric Deposition

Acid precipitation (rain, snow, and fog) can be a major influence on lake and stream chemistry, cause nutrient enrichment in estuaries, and affect sensitive vegetation. Research and monitoring at Acadia since the early 1980s has found that most park surface waters (lakes and streams), on average, are non-acidic. However, short-term episodic acidification of many lakes and streams does occur, especially during spring snowmelt and runoff. In addition, alkalinity values at Acadia (which are related to the ability of water to neutralize or buffer acidic inputs) are among the lowest in the region. Recent research indicates alkalinity in some waters continues to decrease despite recent reductions in sulfate deposition, a pre-cursor to acid precipitation.

Ozone Effects on Park Vegetation

Summer ozone levels occasionally exceed federal health standards. The highest ozone concentration reported in Maine was measured at Acadia on June 15, 1988. Ozone concentrations even below the federal health standard have been shown to damage sensitive park vegetation.

Ozone-sensitive plant species growing naturally in the park were surveyed in August (1992-97) to determine the existence and extent of ozone injury. The surveys focused primarily on broad-leaf aster and spreading dogbane. In 1995 through 1997, visible injury was observed on less than 10 percent of dogbane and aster plants examined. This low incidence of injury is consistent with low ozone levels recorded in the park during these years. A companion study looked at white pine tree ring growth and ozone levels, assessing tree-ring width, climate variables (precipitation and temperature), and ozone levels for a 10 year period. Tree ring growth was shown to be limited in relation to ozone levels in seven out of eight white pine stands.

Evaluate Mercury Contamination in Aquatic Environments

Recent studies discovered high concentrations of mercury in several freshwater fish species sampled in park lakes. The major source of mercury in lakes appears to be deposition from the atmosphere, and it then concentrates in the food chain. Consumption of mercury-contaminated fish can be harmful to humans as well as to other wildlife.

One study evaluating mercury concentrations in fish from lakes in Acadia National Park found that some warm water species (bass, perch, pickerel) from selected lakes sampled, mercury concentrations were above U.S. Environmental Protection Agency human health standard of 1 part per million. Concentrations in cold water species (trout, salmon) in lakes sampled were generally within acceptable limits except for those at highest risk e.g. nursing mothers, children.



Fact Sheet – Water Quality

It may appear that Acadia's lakes and ponds are largely untouched by human influences, but they are impacted by development within and adjacent to park lands. Increased water withdrawals, sewage disposal, and non-point source pollution are very real concerns.

Other impacts to Acadia's water resources may come from oil or hazardous waste spills, landfills, and atmospheric deposition (acid precipitation). In addition, Acadia National Park has limited jurisdiction over many of these water resources within the park boundaries. Seven towns, two counties, four municipal water districts, and numerous state and federal agencies all hold interests in their management.

Considering these complications along with the heavy visitation to Acadia National Park, it is imperative that water resources be monitored closely. Acadia National Park's lake monitoring program provides baseline information characterizing physical and biological conditions. Information collected today supplements a data history extending back to 1942, providing a base to help identify future impacts and threats, and to document changes to these water resources.

ACADIA'S MONITORING PROGRAM

General sampling of many selected lakes occurs once in the spring and again in the fall. A subset of lakes and ponds are sampled monthly for surface temperature, pH, color, alkalinity, and other measurements. Why are these tests important? What do they reveal about Acadia's water resources?

Temperature

Temperature influences numerous biological activities in water systems. The solubility of compounds, the density of water, the levels of dissolved oxygen, the distribution and abundance of organisms, and their metabolic rates (not to mention the comfort of swimmers in cold lakes!) are all affected in one way or another by temperature.

Dissolved Oxygen

Oxygen is as necessary for aquatic organisms as it is for terrestrial. Free oxygen in water, known as dissolved oxygen, comes from two primary sources—the atmosphere and photosynthesizing aquatic plants. Dissolved oxygen levels are an indicator of the life support system of a water body and can be influenced by many factors.

A drop in dissolved oxygen occurs when oxygen is used by aquatic species and when algae, bacteria, and dead organisms decay. Very productive lakes produce more algae which in turn produce more oxygen. The mass die-offs of the algae can then deplete oxygen supplies due to decomposing bacteria's oxygen use. Sometimes large algal blooms can occur from excess nutrients, such as fertilizer run-off or atmospheric deposition, or leaching landfills. This is known as eutrophication. Seasonal temperature changes affect the level of dissolved oxygen as well—cold water holds more oxygen than warm water.

Transparency

Transparency, an important measure of water quality, indicates how far light can penetrate into the water column. It will change throughout the year due to spring and fall changes in algae and other dissolved, suspended material. Some reduction in visibility is normal; too much reduction may serve as a warning flag. For example, algae and zooplankton provide the base for the aquatic food chain. Too many decomposing algae reduce oxygen levels. Too much silt could indicate local erosion and present a problem for gill breathing organisms, and limit photosynthesis in aquatic plants.

pH

Determining how acidic or basic (alkaline) a body of water is helps determine the overall quality of the water and habitat suitability for organisms. The pH scale measures acidity/alkalinity on a scale of 0–14. Levels below 7 are on the acidic side; above 7, alkaline. pH 3 is 10 times more acidic than pH 4 and 100 times more acidic than pH 5. The optimum pH range for most organisms is between 6.5 and 8.2.

The effects of atmospheric deposition which can alter pH levels are a major concern at the park. Acid precipitation (rain, snow, and fog) can influence lake and stream chemistry, and cause nutrient enrichment in estuaries. The major lakes and ponds of Acadia have near-neutral pH levels that appear to be relatively stable over time. The buffering capacities of park lakes are generally very low, making them potentially vulnerable to episodic acidification considering the average rainfall pH in the region is less than 4.6. This occurs occasionally in some of the park's headwater streams.

Other Tests

Other tests to determine water quality include bacterial samples (done on selected lakes at Acadia) and conducting various nutrient tests (for example, nitrogen and phosphorus). Another discovery found through sampling is the discovery of high concentrations of mercury in several freshwater fish species. The major source of

mercury in lakes appears to be deposition from the atmosphere, where it can concentrate in the food chain. Consumption of mercury-contaminated fish can be harmful to humans as well as to other wildlife.

Acadia National Park's water resources are generally considered healthy and well-suited to their uses despite current impacts. The continued monitoring of selected lakes allows managers to remain aware of significant changes which may indicate the need for better understanding or intervention.



Fact Sheet – Fire Management In Acadia National Park

The fire management program at Acadia National Park performs a full range of wildland fire management operations and services. These include fire prevention, education, preparedness, suppression, prescribed fire, hazard fuels management, the reduction of wildland/urban interface hazards, monitoring, and research. The program also conducts wildland fire prevention operations and provides fire management assistance to nine other National Park Service units in New England and New York State.

Some of the activities carried out by the fire management program include:

- Wildland urban interface education and outreach
- Operation of four wildland fire suppression engines and one water tender
- Maintenance of a hundred person fire cache and a twenty person fire cache
- Maintenance of a trained cadre of primary and incidental wildland firefighters
- Use of prescribed fire for management of park vistas
- Mechanical removal of hazard fuels in high use areas
- Creation and maintenance of boundary fuel breaks along park boundaries
- Monitoring of prescribed fires and long-term forest conditions
- Research into fire effects and the long-term history of wildland fire in the park

The fire management staff also administers the Rural Fire Assistance Program which provides federal financial assistance to rural fire departments. Mobilization of park and other North Country Area firefighters to out-of-state fires is coordinated and directed by the fire management staff. This mobilization service is also provided to wildland firefighters from other federal agencies in the area, including the Bureau of Indian Affairs and the U.S. Fish and Wildlife Service, and to local Indian tribes.

Structural fire prevention operations include the inspection and maintenance of fire extinguishers, acquisition and maintenance of fire detection and fire suppression systems in park buildings, and coordination with local fire departments that provide structural fire suppression services for park buildings. The fire management staff also provides professional, technical, administrative and logistical support to the fire management programs of the eleven other NPS units in New England area parks. These programs protect the lives of park staff, visitors and neighbors, provide wildland and structural fire protection to the 48,000+ acres of land and 150+ buildings that make up Acadia National Park, and assist nine other National Park Service units in the protection of their people and resources from fire.

FIRE ECOLOGY

Fire ecology studies the role of wildland fire and how it relates to the living and non-living environment. All living components in the environment eventually die and are in a continuous process of being built up or reduced and recycled. This ebb and flow makes life possible by seeking a balance between all components, living and non-living. Fire is studied as a natural process operating as a component of an ecosystem. To understand an ecosystem requires looking beyond the ecosystem's present state.

A full understanding includes an investigation of the ecosystem's origin, the cycles the system progresses through, and possible future stages. Fire is one of many natural events that promote change in an ecosystem. Prior to 1930, most researchers believed all wildland fire was bad. In the years following many began to challenge the negative notions about wildland fire, and this new thinking prevails today. They argued that fire was essential to many plant and animal communities. It is the common belief today that fire is required in some ecosystems to help in the decay of dead plants, breaking down and recycling the nutrients, and in preparing seedbeds for some fire dependent species.

The history of fire in Acadia National Park extends back thousands of years. Park researchers have used several methods to determine when and why fires occurred in both pre-and post-European settlement periods. By analyzing pollen grains captured in the sediment of the lakes within the park, the researchers have determined that the forest composition has changed over time. Prior to 2,000 BP, northern hardwoods and hemlocks predominated. Over time the area climate cooled and red spruce began to increase. As Native Americans used the area, fire occurrence increased allowing other species to appear. Some scholars suggest that Native Americans may have started periodic fires to encourage the growth of paper birch for their own use. After the Europeans settled the area, the evidence shows a much higher incidence of fire. At present much of the area within the park is forested with a spruce/fir forest mixture.

Natural fire ignitions (lightning) are, and most likely were, of little importance in accounting for less than 2% of all fires in the park between 1936 and 1991. The moist, humid climate of coastal Maine does not encourage natural ignitions. This lack of fire causes large amounts of dead and down wood (fuels) to accumulate on the forest floor. Fuels can also include foliage or grass. They may be fine, such as twigs or needles, or heavy such as logs, branches, or whole trees. They may also be living such as understory layer of tree regeneration or a layer of shrubs. If the fuel load is light a fire may burn through the forest with a very low intensity, typically

consuming only the litter on the very top of the ground. If the fuel load is heavy the fire intensity may become very high. As the forest ages the canopy breaks up allowing younger trees to sprout and grow. This understory layer forms a "ladder" of fuel that may allow an intense fire to ascend in the tops of the trees, creating what we know as a highly destructive "crown fire."

In order for an ignition to take place the fuels must be dry. As summer advances the moisture content in the fuels may go down in a dry year. The State of Maine is currently in a prolonged drought. If conditions are right, the park may experience periods of very high fire danger. There is adequate evidence that periodically, at intervals of a few hundred years, an extremely destructive fire has burned portions of Mount Desert Island.

Fire has naturally occurred for thousands of years prior to settlement. For many ecosystems fire is a natural catalyst for species diversity and a healthy forest. Without periodic fire, the land can become an overstocked monoculture, plagued with excessive fuel accumulation, stagnation, and below normal reproduction, which ultimately encourages widespread disease and insect infestations.

Fire is and has been a natural part of the ecosystem at Acadia National Park, renewing and recycling the forest at periodic intervals. However, the area of Acadia National Park and the neighboring towns and villages are in such close proximity to the forest themselves that allowing a fire to burn in a natural state is not an option. It has often been said that we really don't prevent forest fires, we just defer them. Wildland fire will always present a risk to homes built in the wildland. The park is attempting to address this issue by making its neighbors aware of the problems inherent in living in the wild land/urban interface.

Indeed as the park moves into the new millennium it faces questions on how the ecology of the park might use the beneficial effects of fire. Prescribed burns are now being conducted in some areas of the park to maintain overlook and scenic vistas.

See also Fire of 1947 on page 3-113.



Fact Sheet – Lands

Acadia National Park is one of the few national parks created virtually entirely of donated lands to the federal government. In addition, Congress gave the National Park Service the responsibility to hold conservation easements on private property within the Acadian archipelago. The park's lands program is charged with keeping records of these properties, marking and monitoring park boundaries, and working together with interested landowners to protect the ecological, cultural, and scenic values of their holdings. Specific components of the lands program include:

Conservation Easements

The National Park Service at Acadia National Park currently holds conservation easements on 166 properties in 18 towns. All easements but one are on islands. These conservation easements protect over 11,000 acres of land. Ongoing activities include:

- Evaluating properties offered to the National Park Service as potential conservation easements
- Working with landowners interested in establishing conservation easements to devise appropriate strategies to protect their properties
- Monitoring properties held by the National Park Service to insure compliance with the terms of their conservation easement
- Resolving conflicts on conservation easement properties that are held by the National Park Service

Boundary Management

Acadia National Park has approximately 120 miles of boundary, not all of which are marked or surveyed. Ongoing activities include:

- Monitoring development on lands adjacent to the park to ensure that activities on private property do not encroach on or damage park resources
- Clearing, marking, and surveying park boundaries

Geographic Information System (GIS)

A Geographic Information System (GIS) is a computer system (hardware, software, data, and operator) that can store and analyze geographic data. With GIS, maps are easy to update and can be re-printed as information changes. The power of GIS, though, is really in its ability to easily and quickly analyze information which would, using paper maps, be tedious and difficult. Using GIS, you could easily calculate, for instance, the area of wetlands within the park boundary by overlaying the two data layers, wetlands and park boundary. GIS can also be used to model such things as the spread of fire or determine where to site a new trail or radio tower to reduce visual and environmental impact.

The park has been building a Geographic Information System (GIS) since the 1980s. Maps and analyses are routinely made for reports, presentation, fieldwork, and planning by park staff and researchers. Some examples:

- *Trail Maps*: The park has been using a global positioning system to map the routes of the current hiking trails. This information is being used as part of a National Park Service planning effort to develop an Acadia National Park Trails Management Plan.
- *Bedrock Map*: This shows how map, text, and imagery can be combined using GIS software to produce an informative and visually appealing poster.
- *Fire Effects*: Studies are being conducted on the ecological effects of the 1947 fire. Mapping the location of the fire and the park's freshwater resources helps investigators answer some key research questions.

Scenic Vistas

Acadia National Park protects a landscape of rare scenic beauty. The vistas from the high rocky headlands encompass forested woodlands, shimmering lakes, quiet marshes, bold rocky shores, and coastal islands. On all sides, the ocean that surrounds and bisects the park strongly influences the park's character.

Both the motor road system and the (non-motorized) carriage road system at the park were carefully laid out by prominent landscape architects to take advantage of these spectacular views. Although they are dependent on the natural landscape of Acadia, these designed landscapes have themselves become significant, owing to their history and the sensitivity with which they were designed and built. In recent years, park staff has been actively restoring historic vistas on the carriage road system.



Fact Sheet – Acadia's Outer Islands

While the Mount Desert Island portion of Acadia National Park receives most of the publicity and visitors, the park also administers all or part of fourteen other far less visited islands, from Isle au Haut to St. Croix, on the border of Canada's New Brunswick. Several of these islands are connected to the mainland or larger islands by gravel bars while others are a short boat trip from a launch site. One site is quite remote.

The National Park Service (NPS) recently completed a preliminary inventory of flora and fauna on most of these islands and recorded anecdotal observations of current human use. Several of the islands harbor nesting bald eagles or colonial nesting seabirds, while others contain concentrations of plants rare in Maine. Visitor use is affecting these sensitive resources, and the park will manage the islands more actively in the future with more frequent island patrols.

PARK REGULATIONS ON ISLANDS

Several NPS regulations are essential to island preservation and provide general guidelines for use. Fires and camping are prohibited throughout Acadia National Park with the exception of Mount Desert Island and Isle au Haut, where they are permitted in designated campgrounds. Fires are also permitted in designated picnic areas only. Pets must be on a leash at all times and are prohibited under some circumstances. Feeding wildlife and picking wildflowers or other plants is prohibited throughout Acadia National Park.

THE ISLANDS

Acadia National Park does not encourage visitors to visit these islands, but does not discourage them either except as noted below. Because of the variability of wildlife breeding chronology and the availability of new information each year, contact the park for the latest information before planning a visit.

Schoodic Island is an undeveloped, easily accessible island southeast of Schoodic Peninsula. Despite its apparent ease of access, Schoodic is noted for its rough waters. The island has supported nesting bald eagles. Colonial nesting seabirds have also nested here for many years, and the island has been designated a Maine Critical Area for nesting common eider ducks. Schedule your visit outside the March 15–August 15 nesting season. Pets are prohibited between April 1–September 30.

Heron Island is a remote, undeveloped treeless island 7 km southwest of Swans Island and 1.6 km southeast of Marshall Island in Jericho Bay. Heron is also a Maine Critical area for the nesting common eider duck. Historically, great blue herons and black-crowned night herons nested here. Currently, many species of the colonial nesting seabirds are in residence during the spring and summer months. Heron Island also supports several species of state or locally rare plants. Schedule your visit outside the April 1–August 15 nesting season. Pets are prohibited between April 1–September 30. Tread lightly; step on rocks where possible and use any existing trails.

Sheep Porcupine Island is an undeveloped, forested island with steep, rocky cliffs on its south and east sides. Part of the Porcupine Island chain, it is located northeast of Bar Harbor. The island has supported nesting bald eagles. Schedule your visit outside the March 15–August 15 nesting season.

Bar Island, at the north end of Somes Sound, is a small, easily accessible, undeveloped island. Bar has also supported nesting bald eagles. Schedule your visit outside the March 15–August 15 nesting season.

Bald Porcupine Island is an undeveloped, easily accessible island south/southeast of Bar Harbor. A breakwater extends from near Mount Desert Island to the island. High, steep cliffs on the south and east sides are used by nesting and perching black guillemots. Bald eagles have nested here in the past and still use the island for perching. The island's name comes from earlier days when the forest was cleared for livestock grazing. Respect the eagles' need for space, and avoid disturbance to guillemots on the cliff.

The Hop is a small, easily accessible, undeveloped island in Frenchman Bay connected by a gravel bar to long Porcupine Island at low tide. It is currently used as a perching site for bald eagles. Respect the eagle's need for space.

Baker Island is south of Mount Desert Island and is almost connected at low tide to Little Cranberry Island. Most of the island is covered with red and white spruce except for the north end which is in fields and has several buildings. A few private property owners may be in residence during the summer months. The Baker Island Lighthouse, built in 1828, sits at the center of the island. During the summer season, visitors arrive daily and can enjoy a hike across the island. Respect historic buildings and private property.

Monitoring Assistance: If you discover campers or fires, or other inappropriate behavior, the park staff would appreciate notification as soon as possible at park headquarters. Any other observations would be helpful as well.



Fact Sheet – Visitor Use

With the heavy visitation at Acadia, visitor specific studies and recommendations have centered on high use areas to find solutions to resource degradation due to high levels of use. A visitor management/capacity planning process for Acadia National Park will start in 2003-2004.

CARRIAGE ROAD MANAGEMENT

Biking on the park carriage roads grew enormously in popularity in the 1980s. Complaints from visitors and residents about crowding and problem behaviors led the park to apply the Visitor Experience Resource Protection (VERP) Framework, a carrying capacity planning process. Dr. Robert Manning of University of Vermont conducted survey research on carriage road users from 1994-1996 to gather information to support the VERP process and eventual carriage road management decisions. Carriage road monitoring from 1997 to 2000 showed that carrying capacity standards were not violated.

CLIMBING

Rock climbing has increased greatly in popularity at Acadia since the early 1980s. Otter Cliffs became crowded largely because of its popularity with climbing groups, and soil erosion and vegetation loss there was severe. The installation of fixed protection was increasing at Acadia and of concern to managers, although it was not excessive when compared with other climbing areas in the region.

Between 1995 and 1997, Acadia National Park developed a climbing management plan with public input. To protect soils and vegetation from further damage, the park installed a limited amount of fixed protection at Otter Cliffs. Requests to install fixed protection are filtered by a climbing advisory group before going to the superintendent for approval. Fixed protection is prohibited in some climbing areas. Vegetative restoration work took place there in 1998 and areas are now roped off to prevent human activity and allow recovery. A portable toilet was installed in the parking area at Otter Cliffs in 1997. Group use of Otter Cliffs is now limited to two groups of 12 persons each day and reservations are required.

LEAVE NO TRACE

Leave No Trace is a nationwide low impact outdoor ethics program of the four federal land managing agencies. At Acadia, we are including the *Leave No Trace* principles in our signs, brochures, and other programs. Four ridge runners hired by Friends of Acadia (local park support group) began educating park hikers about *Leave No Trace* principles and building cairns in 1998. See page 1-21 for guidelines.

MOUNTAIN SUMMITS

Hiking is very popular in Acadia. The bare granite summits offer outstanding views of a mountain and ocean landscape. They also harbor some of Acadia's rarest plants. Acadia staff has been monitoring visitor use of some summits and contacting hikers about ways to reduce human impacts in these sensitive habitats.

TRAILHEAD SIGNS

In 1998, new signs were installed at seventeen major trailheads and six carriage road and trail access points. Each sign includes a map, low impact (*Leave No Trace*) guidelines, or carriage road courtesy guidelines. The signs were funded by the Georgia Pacific Company and a private donor with the help of Friends of Acadia.

VISITOR SURVEYS

In 1998, the National Park Service conducted two studies of visitors to Acadia National Park. Randomly selected individuals were asked questions about their current visit to the park, their opinions on several current and important issues (new transportation system, commercial services, and park fees), overall satisfaction with park facilities and programs, and their understanding about the mission of the National Park Service at Acadia National Park. Results of these studies will help guide several important decisions over the next five years. Visitor survey cards are now issued each year.



Fact Sheet – Curatorial Management

Most visitors may think of Acadia as only a “natural” park, but it holds a rich cultural heritage as well. Over 865,000 objects and documents are in the collection from both Acadia National Park and Saint Croix Island International Historic Site (overseen by Acadia National Park). Items in the collection date from 1596 to 1999 and include the following:

- Archeological materials (prehistoric and historic) related to ancestral Wabanaki sites in the park, the Carroll Farm Homestead, Islesford (Little Cranberry Island), and the settlement of Saint Croix Island
- Historic artifacts and archival documents pertaining to New France, George B. Dorr (one of the founders of Acadia National Park), the Cranberry Isles, the Mount Desert Island Region the Carroll family of Southwest Harbor, Maine Acadian Culture, park administrative history, and genealogy of the first settlers of the Cranberry Isles
- Plant and animal specimens related of Acadia National Park including the William H. Proctor invertebrate and the Harold White dragonfly/damselfly collections

ISLESFORD HISTORICAL MUSEUM

Founded by William Otis Sawtelle in 1919 and located on Little Cranberry Island. The permanent museum exhibits explore life in the Town of Cranberry Isles (a set of five islands located in the Gulf of Maine) during the 19th century, when schooners were the mode of transportation and oceans were the highways. Special exhibits are often displayed. The museum is open mid June to late September and admission is free.

WILLIAM OTIS SAWTELLE COLLECTIONS AND RESEARCH CENTER

Located in Bar Harbor at park headquarters, the center is dedicated to William Otis Sawtelle, founder of the Islesford Historical Museum on Little Cranberry Island. The center houses historic artifacts, archival documents, and natural history specimens currently not on exhibit at the Islesford Historical Museum or the Sieur de Monts Spring Nature Center. The museum items represent the natural and cultural history of Acadia National Park and Saint Croix Island International Historic Site; the Carroll Homestead of Southwest Harbor; George B. Dorr, one of the founding fathers of Acadia National Park; The Town of Cranberry Isles; “New France;” and the administrative history of Acadia and Saint Croix.

Over 865,000 artifacts, documents, and specimens, dating from 1596-1999, are in the museum collection. Special collections include:

- William Otis Sawtelle Collection (New France, Cranberry Isles)
- William H. Proctor Invertebrate Collection
- Harold B. White Odonata Collection
- Acadia National Park Administrative History Collection
- Ralph H. Long Ornithological Slide Collection
- Genealogy of the Cranberry Isles Collection
- Carroll Homestead Collection

The center is open Tuesday through Friday from 8:30am to 3:30pm, by appointment, year around. Access to the collection for scientific research, genealogical study, or development of a publication is permitted. Prospective researchers need to contact the park's Museum Curator for an appointment.

To arrange an appointment to conduct research or if you have research questions contact the park curator at:

Acadia National Park
c/o Curator
P.O. Box 177
Bar Harbor, Maine 04609
(207) 288-8729
e-mail: Brooke_Childrey@nps.gov

Archival documents in good condition (determined by the museum curator) may be photocopied for a small fee. Photographs (in good condition) may be reproduced for a fee (contact the curator for current prices). Artifacts may be loaned to other historic institutions for exhibitions.



Fact Sheet

Other Important Resource Management Responsibilities

The Environmental Compliance Program at Acadia National Park strives to ensure that all park construction, rehabilitation, and other projects or actions comply with all applicable federal, state, and local environmental laws and regulations. Applicable laws protect wetlands, air quality, water quality, endangered species and the cultural/human environment. For all major park activities, the public will have an opportunity to provide comments to the National Park Service in accordance with the National Environmental Policy Act.

The Integrated Pest Management (IPM) Program oversees the park's management of plant and animal pests. Pests are those species that interfere with the purposes of the park such as protecting natural or cultural resources, or visitor safety. For example, carpenter ants threaten the structural integrity of park buildings. Raccoons and red foxes can carry rabies and quickly learn to aggressively scavenge food scraps from campers and other visitors. Non-native diseases such as beech bark disease and white pine blister rust kill trees, and can change the structure, composition, and functions of forests in Acadia.

The National Park Service uses Integrated Pest Management (IPM) to manage these problems. This approach is based on proper identification of a pest and a thorough understanding of the biology of the pest species being managed. IPM minimizes the use of chemical treatments in favor of other actions such as prevention, education, monitoring, setting thresholds for tolerating the effects of pests, and alternative treatments, when appropriate. Chemical treatments are used only as a last resort, and only when shown to be the most effective and least damaging method of treatment.